Exhibit E – Soundness of Approach

Commonwealth of Massachusetts

ExhibitESoundAppMA.pdf

Link to DropBox/Exhibit E:

https://www.dropbox.com/sh/5csxkn0vzdtox5f/AACoIEeaEy_fhpap8DGUYffca?dl=0

Exhibit E – Soundness of Approach

Stakeholder Consultation and Involvement

To prepare for this Phase 1 application, the MA Team reached out to local, state, federal, nonprofit, university and private stakeholders (see Attachment D). Consultations took the form of emails, phone calls, data and information sharing, site visits, and meetings. We reached out to project partners, including the regional planning agencies (MAPC, FRCOG, PVPC, BRPC, and the Martha's Vineyard Commission) that are on the front lines, communicating with the communities. We also reached out to the individual communities. We met with Deerfield Watershed Creating Resilient Communities, an *ad hoc* group of local political leaders, residents, scientists from UMass, engineers from NRCS and many others, to learn about the many issues the Deerfield River watershed area has been addressing since the catastrophic events of Hurricane Irene. Following up on leads from regional planning agencies, MEMA, MassDOT, the MA State Geologist, and even newspaper articles detailing the ravages of particular disasters, we called and met with communities hoping to better understand the issues they faced during and since the disasters. We contacted officials from Oak Bluffs, Vineyard Haven, Charlemont, Fall River and dozens of other communities with needs that did not meet the HUD threshold criteria. We hope to qualify some of these as target areas for HUD funding in our Phase 2 application.

MA held two public hearings (Attachment D), one in western MA and another in eastern MA, to learn about impacts from disasters, broad visions for resilience in MA, and specific suggestions on particular site-specific issues. We also held two public comment periods (Attachment D), one to solicit suggestions as the application was being prepared and another to receive public comments on the draft application.

Of particular note is our close coordination with the City of Springfield, another eligible applicant to HUD's National Disaster Resilience Competition. The MA Team has benefited from teleconference meetings with the City, and from Springfield sharing its unmet recovery needs information. We are partnering on each other's projects and look forward to a strong and coordinated relationship between the two teams especially as they affect vulnerable populations.

Concept for Resiliency

MA is eager to move toward the next step of climate change resiliency and preparedness. As we look to the future, we envision a state that has infrastructure and housing built to withstand changing climatic conditions especially extreme events; local residents living and working in areas designed to withstand increases in precipitation, flooding, and temperature; coastlines where communities are "living with" water; natural systems with thriving habitats, unimpeded rivers and streams meeting the ocean with fully-functional floodplains and buffers; and a government with robust policies, incentives, and outreach/education programs designed to meet the needs of local communities and their vulnerable residents. We envision a state in which the diverse interests and needs of MA communities are met, whether they are urban or rural, eastern or western, coastal or inland.

While addressing unmet recovery needs in target areas will provide a much needed jump-start to improvement of local conditions, an important aspect of our vision is a forward-looking approach to meeting future challenges of climate change head on, ensuring that the extent and amount of damage occurring from disasters such as hurricanes, storms, and tornadoes in minimized in the future. We are intent on planning and managing impacts of climate change before they occur and feel this is preferable to reactive responses implemented after an impact takes place. This approach has the potential to reduce costs, minimize or prevent impacts to public health and safety, and minimize damage to crucial natural resources and built infrastructure. Both management and planning should be flexible, dynamic, and adaptive, and strategies must be continuously revisited and revised. The MA Team has proven that it is skilled in just this type of approach.

It is imperative to have robust natural and anthropogenic systems that can withstand weather extremes and long-term changes in climate. To that end, the MA Team is extremely interested in fostering community-focused adaptation strategies with visioning, data and modeling, policy analysis, financial incentives, and appropriate regulatory structures provided at the state level. We have found that there is a tremendous need for this and we will continue our commitment to an open process to identify additional target areas and solidify projects ideas.

Project Ideas

In addition to considering the entire Commonwealth as its target area, the MA Team strategically selected four target areas for potential HUD funding for inclusion in Exhibit B: Springfield, Oak Bluffs, Shelburne Falls (Buckland portion), and Charlemont. Together, these target areas have unmet recovery needs from all six federally declared disasters, ranging from snowstorms to hurricanes causing inland/riverine damage, to hurricanes causing coastal damage, to tornadoes. This diversity of target areas will enable us to develop a robust and comprehensive Phase 2 application that addresses all of these issues. During outreach for the Phase 1 application, we identified these target areas as well as a number of potential projects to include in our Phase 2 application. This engagement was enlightening and we plan to continue it, even before HUD announces its decisions regarding the Phase 1 applications, to identify additional target areas and to shape the best projects for our Phase 2 application.

MA's ability to adapt to climate change will be improved through robust science, data collection and analysis; inclusion of climate change in the criteria and evaluation of programs; application of a climate change lens to current planning efforts; examination of funding opportunities and regulations to determine whether they should consider climate change; and continuation of current efforts to increase resilience and decrease vulnerabilities in a wide variety of public and private assets. The following are some project ideas to promote resiliency in MA**.**

Although Massachusetts does have counties, they do not exert any real regional government authority. The Regional Planning Agencies (RPAs), some with regulatory authority, work at a cross-community scale to assist communities with their developmental, transportation, environmental and other issues. The MA Team proposes to set up a '**State-RPA Collaborative**' for a structured bottom-up engagement and prioritization effort to promote a clear understanding and communication of local resiliency needs and a pooling of resources, equipment, and subject-expert staff to achieve economies of scale. Many communities are low- and moderate-income, with a limited tax base, and often without paid staff, so sharing these resources among RPAs and with neighboring towns would help meet many local needs. Working with grassroots partners and RPAs, we would engage target areas in **Participatory Project Selection,** setting aside some funding so that they can identify areas most in need of those funds. This would empower the communities as they build resilience from the ground up.

Post-Hurricane Sandy, the development community gained heightened awareness of the vulnerability of their properties to sea level rise, storm surge, and riverine flood waters. To engage this community and begin the process of making existing buildings more resilient to flood waters and coastal surges, we will establish a **'Resilient Building Competition'**. This would be modeled after the CZM-funded Living with Water Competition in Boston, and other similar efforts, and will provide developers and property owners an opportunity to put forth creative ideas on how to 'live with water' rather than to simply fortify against flooding.

The MA Team is committed to implementing EEA's Department of Energy Resources **Community Clean Energy Resiliency Program**, providing clean energy resilience grants to municipal/regional entities to harden critical energy services using clean energy technology, including solar, electric storage, combined heat/power, renewable thermal, fuel cells, district energy, and micro grids. Beneficiaries of the program include municipalities, hospitals, regional wastewater treatment utilities, and electric cooperatives. Related to this program, the MA Team would like to develop an **Energy Justice Program** that enables low- and moderate-income populations to gain access to the

benefits of clean energy. Clean energy can help to reduce heating and cooling costs but its upfront costs are often a barrier to installation. This type of program would help to lower those barriers as well as provide economic security through reduced utility bills.

The MA Team is also committed to instituting the **Green Infrastructure for Coastal Resilience Grant Program**. EEA's Office of Coastal Zone Management (CZM) is administering grants to provide municipalities and nonprofits with financial and technical resources to advance the understanding and implementation of natural or nonstructural approaches to mitigating coastal erosion and flooding problems. Complementing this programs, we would also like to create a **'Green by the Stream'** program to encourage green infrastructure and natural buffering of waterways and other inland areas, perhaps in the form of grants to communities. Hurricanes Irene and Sandy and many other smaller storms have all highlighted the need for natural buffers to protect our built environment. It is imperative that we prioritize, protect, restore, and construct green infrastructure techniques to buffer key infrastructure and dense population areas. A green infrastructure approach has multiple benefits of protecting upland and riparian areas, enhancing habitat and ecological values, and creating recreational and aesthetic opportunities for local citizens.

We are very interested in creating a **'Plant a Tree Program'** to increase tree planting in rural and urban areas. This project could engage local businesses, municipalities, federal agencies, and even school children. In the rural areas of Hampden County and most impacted and distressed areas of the Deerfield and Hoosic Rivers watersheds (Mohawk Trail Woodlands Partnership), this project would focus on forest restoration, building stream and river buffers in farms, and an urban forestry program. The project could benefit from MA DOER's study of the establishment of a local wood pellet manufacturing plant to create that market, boost the local economy, and supply low-cost fuel to heat local schools and residences. In urban areas, including Holyoke, Chicopee, and Springfield in Hampden County and other small manufacturing cities, this project would focus on implementing tree

planting projects in target urban basins to provide relief from urban heat island, reduce winter heating costs, and reduce water pollution from stormwater and combined sewer overflow discharges.

Another project idea is to create a statewide interactive **Data and Mapping Tool**. Municipalities in MA, especially low- and moderate-income communities, are in need of tools that will better help them understand the location of their various natural and built environment, downscaled climate change predictions, the extent of the impact of climate change on their lands, and a way to visualize how mitigation actions will help alleviate future damage and impacts. We would like to develop tools that translate technical information, such as maps depicting the results of sea level rise modeling being conducted for MassDOT, into user-friendly products that can be used by others. This will help developers and others consider risk of various development alternatives. For example, the MA Team is exploring the extension of the Climate Change Science Clearinghouse (CCSC) tool that NESCAUM is creating for the state of New York. The broader goal is to have all of the Northeastern states to utilize a unified tool to allow for true regional and cross-boundary planning. This approach received support at the Coalition of Northeastern Governor's meeting last December.

We would like to **Sharpen the Science** by updating climatic and hydrologic databases; developing downscaled temperature and precipitation predictions and climate scenarios; and collecting other scientific information that will help policy-makers, developers, and municipal officials make appropriate decisions regarding the risks of climate change impacts.

The MA Team is committed to implementing the **Coastal Community Resilience Grant Program.** These CZM-administered grants provide municipalities with financial and technical resources to advance new and innovative local efforts to increase awareness of climate impacts, identify vulnerabilities, and implement measures to increase community resilience. Projects must implement one (or more) of these four StormSmart climate adaptation actions: 1) conduct public education and awareness or other communication initiatives, 2) assess vulnerability and risk, 3) identify and implement management measures, standards, or policies, and 4) redesign to accommodate

changing conditions. Other **Incentives for Coastal Communities** would encourage property owners to reduce the risk of coastal inundation by creating funding opportunities to promote free-boarding or elevating buildings, move buildings, or buy out properties at risk.

The MA Team would like to support the **Metro Mayors Coalition**, a groundbreaking coalition made up of 13 communities in Greater Boston. Through this voluntary forum area municipal officials exchange information and create solutions to common problems. MAPC helped to establish Metro Mayors in 2001, and provides staff support and financial administration. Group members represent more than 1.2 million constituents and include mayors and managers from Boston, Braintree, Brookline, Cambridge, Chelsea, Everett, Malden, Melrose, Medford, Quincy, Revere, Somerville and Winthrop. Most of these communities have low- and moderate-income populations. Recently, the Metro Mayors have banded together to address their common, regional resiliency issues. Boston Mayor Marty Walsh is scheduled to kick-off this effort at a public event in April 2015.

Assisting communities to recover from past disasters and incorporate resilience into their designs is a priority of the MA Team. A commitment of this application, EEA's **Dam and Sea Wall Repair or Removal Fund** is a grant and loan program for the repair and removal of dams, levees, seawalls, and other forms of inland and coastal flood control. Preference is given to projects that: improve public health and safety; protect other public infrastructure; recognize the potential impact of climate change and improve resilience; improve or expand use of naturally occurring systems; fit into a larger comprehensive plan to improve the environmental condition, complementing other work ongoing in the local watershed; address a structure in a community with an environmental justice population; and indicate a commitment to equity of opportunity through its Supplier Diversity Form. We are strongly interested in expanding this **Fix it First Program** to provide target areas an opportunity to receive funding to make other repairs to infrastructure, environment, and housing, thus facilitating recovery from past disasters and ensuring resiliency against future events.

With funding from the U.S. Centers for Disease Control and Prevention, MA Department of Public Health (DPH) assessed the capacities of local health departments to address the consequences of climate change and made recommendations for local health departments to adapt to climate change (see DropBox/Exhibit E/ MA DPH 2014.pdf). The MA Team would like to support the next steps of DPH's **Outreach and Education** to municipal health officials and local boards of health, with a particular focus on reaching out to vulnerable populations.

We intend to work with local partners to provide education, outreach, and access to shelter, equipment, and services that would build resiliency in **Environmental Justice** communities. This will include efforts related to tree planting, Energy Justice and public health outreach and education. Other project ideas include developing **Guidance on Historic Building Resiliency** to ensure that buildings constructed during past climatic conditions are able to withstand future conditions, and **Collaboration with the Insurance Industry** to explore the relationship between resilient communities and insurance availability and affordability.

Subfactor: Potential Co-Benefits

The approaches highlighted above showcase themes and climate change adaptation strategies that resonate across multiple sectors. They have multiple benefits across political jurisdictions, crossing over many human-related sectors, and natural systems. Some of the approaches address climate change adaptation and can also be considered climate change mitigation strategies because, in addition to contributing to providing increased resilience and preparedness to climate change, they concurrently achieve reductions in the greenhouse gas emissions that contribute to the problem of climate change. Other strategies have cross-cutting features that preserve, protect and restore natural habitats and the hydrology of watersheds. These strategies not only benefit natural resources and habitat, but can also play a critical role in protecting and increasing resilience of key infrastructure sectors, human health, and the local economy. For example, green infrastructure for stormwater treatment and control represents a regional approach to urban environmental restoration wherein

multiple target cities within the same watershed (e.g. Holyoke and Chicopee on the Connecticut River) can have cumulative benefits by mitigating impacts from flood events, and gain secondary benefits such as reducing stormwater pollution and treatment costs, energy costs, urban heat island effects, and improving air quality and resident health. The approaches presented above help to improve the socio-economic status of vulnerable populations and enable a better quality of life for the residents of low- and moderate-income communities. They foster more vibrant communities through better planning and foresight that addresses health issues, stormwater and other pollution impacts, reliance on local power, and enhanced recreation opportunities.

Subfactor: Addresses vulnerable populations

Structures such as buildings, roads, bridges, and dams that exist along rivers, the coastline, and in other vulnerable areas are more likely to be impacted from sea level rise and storm surge. Low income and other vulnerable populations will disproportionately suffer the effects of extreme events, be least-equipped to adapt, and rely more heavily on government for support and relief. Great risk to local governments lies in their fiscal well-being. Damage to private property due to climate extremes may reduce the municipal tax base and, at the same time, call for an increase in services for vulnerable populations, emergency response, and public and private infrastructure maintenance upgrades or replacement. In areas with low- and moderate-income residents, this issue will be further exacerbated.

In general, some residents will be more susceptible to the effects of climate change, and adaptive change will be more difficult for them. Whether by virtue of economic status, social capacity and resources, health, age, or geography, adaptation efforts should include planning to meet the unique needs and conditions of the state's most vulnerable populations – including those with limited resources to take protective and adaptive measures and to recover after losses, and those coping with existing chronic illnesses that could be aggravated by the expected climatic change. Children, the elderly, the disabled, and low- and moderate-income groups, in particular, should be considered in any adaptive plan. Other vulnerable populations include immigrants; the homeless; un- or under-insured

people; residents with increased exposure to ambient asthmagens; residents of older or substandard housing; people who are geographically isolated from health care services; people with certain pre-existing conditions, especially asthma or lung dysfunction or compromised immune systems; and outdoor laborers such as farm and construction workers.

Many of the disasters that this application addresses have hit areas of low- and moderate-income. The year-round population in Martha's Vineyard is typically lower income and economically less advantaged than the seasonal population that visits the island in the summer. In fact, Duke's County, of which Martha's Vineyard is a part, is one of the poorest counties in the state.

Hampden County has levels of poverty greater than the national average and unemployment rates equal to the national average. Of the damaged and destroyed Hampden County structures, 37% were occupied by renters, 42% were uninsured and 30% of the occupants qualify as low income. Without assistance for recovery, the impacted communities cannot effectively recover from the events. Franklin County, where the Deerfield River watershed is located, has a poverty level greater than the state average. It is very clear that these areas are in severe need of assistance to rebuild and make them more secure and resilient to future such events. The MA Team, through the various programs and approaches highlighted above, is eager to partner with these communities to provide enhanced and focused attention that will address their short- and long-term needs.

Current Commitment to Resilience

With our relevant backgrounds, The MA Team is able to implement programs that will enhance local economies, improve environmental stewardship, protect and preserve public health and safety, protect infrastructure, and address the needs of particularly vulnerable populations who may not have the ability to get out of harm's way. Our current commitment to resilience includes many projects that are currently underway in the Commonwealth. Several ongoing efforts are listed in Exhibits F and G and provide a solid foundation for implementing our vision for resilience.

The MA Climate Change Adaptation Report (http://www.mass.gov/eea/air-water-climate-change/climate-change/climate-change-adaptation-report.html) has been guiding the state since it was published in 2011. Key strategies of the report are: perform risk and vulnerability assessments; develop up-to-date and accurate information, models, and decision-support tools; minimize impacts through effective planning and management; implement measures that preserve, protect and restore natural habitats and hydrology; and assess and enhance emergency management tools and capabilities. The report also provides discipline-specific strategies such as protecting ecosystems and maintaining ecosystem health and diversity for protection of natural systems, including climate change in building practices, and using natural systems for the protection of infrastructure. Since then, the Commonwealth has prioritized climate resilience and preparedness actions that address impacts on our transportation and energy assets, built and natural environments, and public health. Through a state-wide framework of prioritization and allocation of resources supporting both local and regional implementation efforts, these ongoing actions being coordinated by EEA range from assessments of assets and vulnerabilities, adaptation planning, on-the-ground fortification of infrastructure and assets, and. Actions also include the development of new grant programs to assist communities, policy changes to better utilize best available information, trainings for practioners dealing with these issues, and investments in the resources and data necessary for us to better understand and address our risks. A continuation and extension of these programs will need sustained horizontal coordination amongst state agencies as well as vertical coordination and collaboration across all levels of government, affected populations, and with key stakeholders.

Form HUD2995

The MA Team has included a Form HUD2995, Certificate of Consistency with Sustainable Communities Planning and Implementation which verifies that this application meets program requirements and supports local Preferred Sustainability Status (DropBox/Exhibit E/PreferSustainCommStatus.pdf).